

# MAGNETOSPHERIC MULTISCALE MISSION PREPROPOSAL CONFERENCE: INTRODUCTION

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NASA HQ  
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# **ACKNOWLEDGEMENTS and INTRODUCTIONS**

## THEN

MMS Science and Technology Definition Team (STDT) Chair - Jim Burch

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MMS Program Scientist - Jim Spann

MMS Program Executive - Vicki Elsbernd

## NOW

MMS Program Scientist - Mary Mellott/HQ

MMS Program Executive - Vicki Elsbernd/HQ

MMS Project Manager - Arlene Peterson/GSFC

Technical, Management and Cost Review Team Leader - Cindy Daniels/LaRC

# PREPROPOSAL CONFERENCE PURPOSE

“The purpose of this Conference will be to address questions about the proposal process for AO 03-OSS-01: Magnetospheric MultiScale mission (MMS), including a discussion of the **evaluation criteria, procurement approach, International Trade Regulations**, and Education and Public Outreach plans.”

- MMS AO Section 6.2.1

The AO and documents referenced in it are the only binding documents concerning this opportunity. In the event of conflict between these charts and the Announcement of Opportunity (AO), the AO takes precedence.

Basic assumption: Everyone has read the AO, focus will be on unique aspects of this particular opportunity

# **PHILOSOPHICAL POINT #1:**

## **The Purpose of an AO**

AO 03-OSS-01

Announces and describes an opportunity to provide an Instrument Suite Science Team (ISST) investigation to address the goals of the Magnetospheric MultiScale Mission

It is not a cast-in-concrete blueprint for how the mission will actually be implemented. It does represent NASA's best estimate as to how such a mission might be formulated, and presents information developed from NASA studies of the mission in order to provide guidance to proposers.

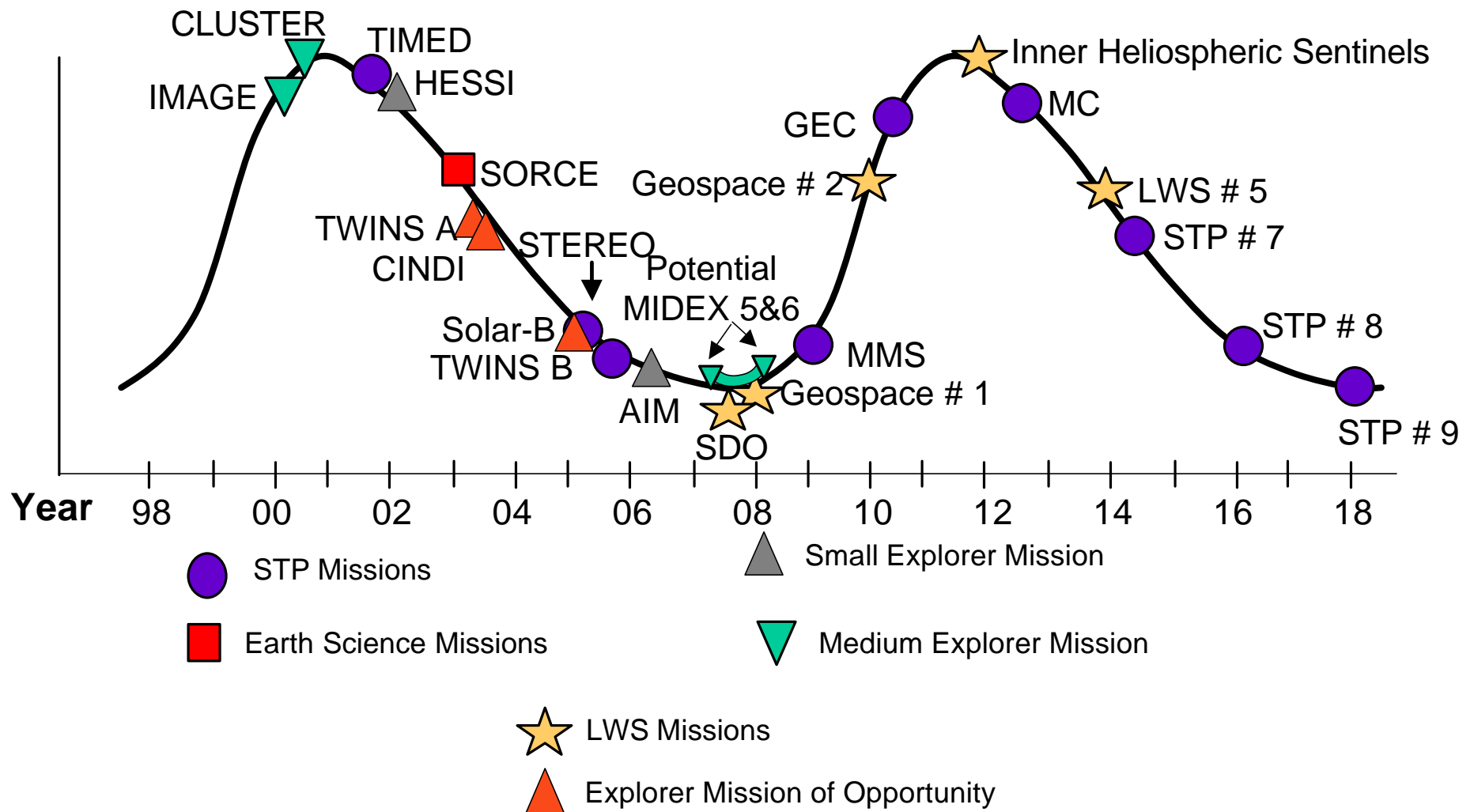
# **PHILOSOPHICAL POINT #2:**

## **The Place of MMS in the STP Line**

MMS is the fourth mission in the Solar Terrestrial Probes (STP) mission line, which has as its program objective to execute a continuous sequence of SEC community defined strategic projects which provide in-situ and remote sensing observations, from multiple platforms for the sustained study of the Sun-Earth System.

The standing of MMS as a STP means that

- a) the mission has science obligations beyond those of simply fulfilling individual mission goals and that
- b) resources above and beyond those that have already been assigned to MMS can only come at the expense of other missions in the line



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MSS PPC: Introduction

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# **PHILOSOPHICAL POINT #3:**

## **Special MMS Demands**

Because of the nature of the MMS science goals

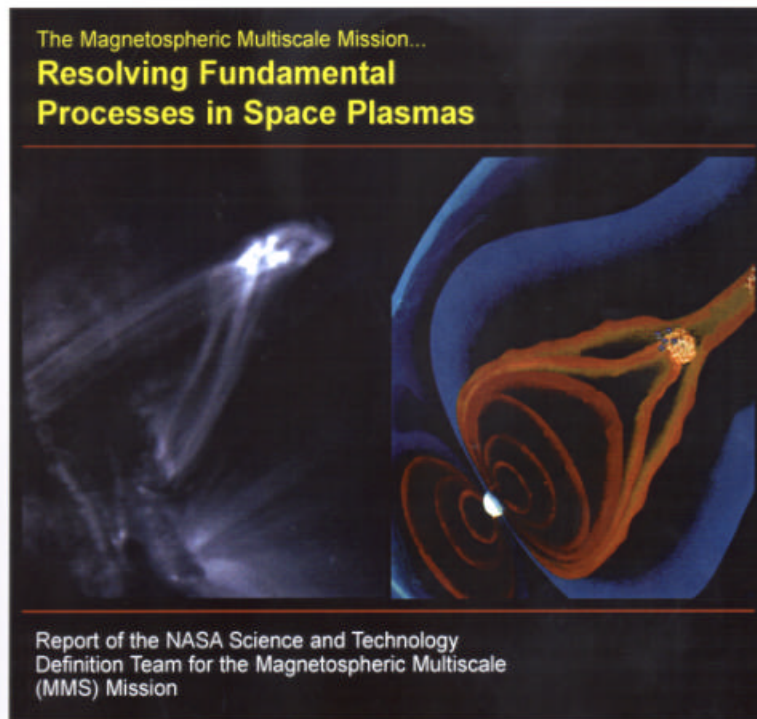
- MMS STDT stressed that solving the problems addressed by the MMS mission will require a synergistic use of the instruments

And because of

- the requirement for providing four spacecraft within a limited resource envelope

AO 03-OSS- 01

- (1) Solicits proposals for an entire integrated instrument suite rather than for individual instruments
- (2) Solicits instrument proposals significantly before spacecraft design is to be finalized
- (3) allows selection of multiple proposals for Phase A funding



National Aeronautics and  
Space Administration  
Goddard Space Flight Center  
Greenbelt, Maryland 20771

December 1999

# THE MMS MISSION

“The scientific objectives of the MMS mission are to explore and understand the fundamental plasma physics processes of, **primarily, magnetic reconnection**, and secondarily, particle acceleration and turbulence, on both the micro- and mesoscales in the Earth’s magnetosphere”

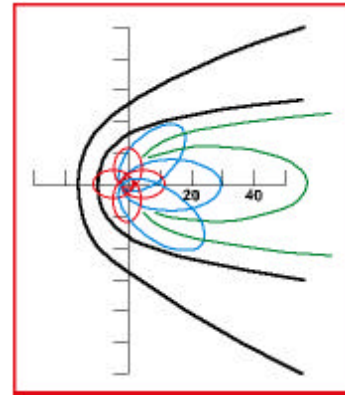
- MMS AO Section 1.2



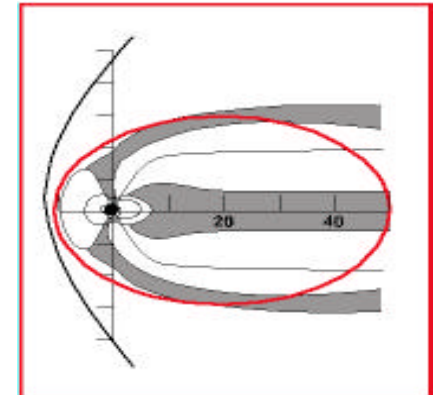
# STDT MISSION CONCEPT

## 4 Orbital Phases

- Phase 1a: Near-tail (equatorial; apogee  $10 R_E$ )
- Phase 1b: Subsolar (equatorial; apogee  $10 R_E$ )
- Phase 2: Mid-tail (equatorial; apogee  $30 R_E$ )
- Phase 3: Far-tail (equatorial; apogee  $120 R_E$ )
- Phase 4: Polar ( $10 R_E \times 40 R_E$ )



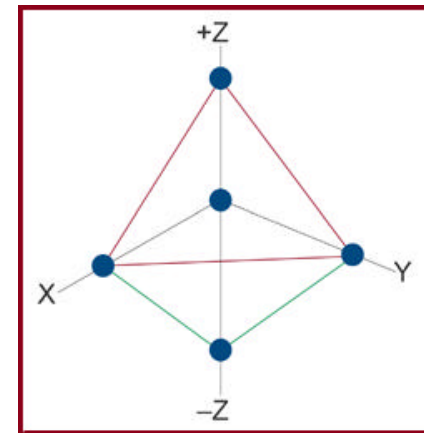
Phases 1-3, Equatorial



Phase 4, Polar

## Implementation Strategy

- Four identical spacecraft in a tetrahedral formation
- S/C separation variable from 10 km to several  $R_E$
- Interspacecraft ranging and communication
- Integrated payload
- **2-year** mission, with launch in 2009



MMS spacecraft in formation

# PPC AGENDA

<b>8:30</b>	<b>Welcome &amp; Introduction</b>	<b>Mellott</b>
<b>8:45</b>	<b>The Solar Terrestrial Probes Program</b>	<b>Hoeksema (Elsbernd)</b>
<b>9:00</b>	<b>AO 03-OSS-01: AO Highlights</b>	<b>Mellott</b>
<b>9:30</b>	<b>International Agreements</b>	<b>Bress/Miller</b>
<b>9:50</b>	<b>Export Control</b>	<b>Hall</b>
<b>10:15</b>	<b>Break</b>	
<b>10:30</b>	<b>AO 03-OSS-01: Programmatic</b>	<b>Elsbernd</b>
<b>10:15</b>	<b>Technical, Management, and Cost Review</b>	<b>Daniels</b>
<b>11:15</b>	<b>Questions</b>	<b>HQ</b>